

U.S. Patent Application Serial No. 10/594,491
Response dated December 11, 2008
Reply to OA of October 10, 2008

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): An actuator for a pickup, comprising:

a fixed portion;

a movable portion movable in each of a focusing direction extending along an optical axis of an objective lens and in a tracking direction substantially perpendicular to the focusing direction, for holding the objective lens; and

a plurality of linear elastic members of five or more each having ends connected to the movable portion and the fixed portion, respectively, wherein

the linear elastic members that are adjacent to each other when viewed from the focusing direction are designed such that a dimension distance between connection portions of the linear elastic members connected to the fixed portion is larger than a dimension distance between connection portions of the linear elastic members connected to the movable portion, and

the plurality of linear elastic members have connection portions on a side of the fixed portion which are located on a first virtual circle, and connection portions on a side of the movable portion which are located on a second virtual circle.

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Claim 2 (currently amended): The actuator for the pickup according to Claim 1, wherein the linear elastic members that are adjacent to each other when viewed from the tracking direction are designed such that a dimension distance between the connection portions connected to the fixed portion is larger than a dimension distance between the connection portions connected to the movable portion.

Claim 3 (previously presented): The actuator for the pickup according to Claim 1, further comprising six of the linear elastic members.

Claims 4-5 (canceled):

Claim 6 (currently amended): A pickup device comprising:
an actuator for a pickup; and
an actuator drive portion for driving the actuator for the pickup, wherein
the actuator for the pickup includes: a fixed portion; a movable portion movable in each of
a focusing direction extending along an optical axis of an objective lens and in a tracking direction
substantially perpendicular to the focusing direction, for holding the objective lens; and a plurality
of linear elastic members of five or more each having ends connected to the movable portion and the
fixed portion, respectively, wherein

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the linear elastic members that are adjacent to each other when viewed from the focusing direction are designed such that a dimension distance between connection portions of the linear elastic members connected to the fixed portion is larger than a dimension distance between connection portions of the linear elastic members connected to the movable portion, and

the plurality of linear elastic members have connection portions on a side of the fixed portion which are located on a first virtual circle, and connection portions on a side of the movable portion which are located on a second virtual circle.

Claim 7 (canceled):

Claim 8 (currently amended): A recording medium drive device, comprising a pickup device including: an actuator for a pickup; and an actuator drive portion for driving the actuator for the pickup, wherein

the actuator for the pickup includes: a fixed portion; a movable portion movable in each of a focusing direction extending along an optical axis of an objective lens and in a tracking direction substantially perpendicular to the focusing direction, for holding the objective lens; and a plurality of linear elastic members of five or more each having ends connected to the movable portion and the fixed portion, respectively, wherein

the linear elastic members that are adjacent to each other when viewed from the focusing direction are designed such that a dimension distance between connection portions of the linear elastic

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members connected to the fixed portion is larger than a dimension distance between connection portions of the linear elastic members connected to the movable portion, and

the plurality of linear elastic members have connection portions on a side of the fixed portion which are located on a first virtual circle, and connection portions on a side of the movable portion which are located on a second virtual circle.

Claim 9 (canceled):

Claim 10 (currently amended): A method of producing an actuator for a pickup comprising a fixed portion, a movable portion movable in each of a focusing direction extending along an optical axis of an objective lens and in a tracking direction substantially perpendicular to the focusing direction, for holding the objective lens, and a plurality of linear elastic members of five or more each having ends connected to the movable portion and the fixed portion, respectively,

the method comprising the steps of:

disposing the linear elastic members that are adjacent to each other when viewed from the focusing direction such that a dimension distance between connection portions of the linear elastic members connected to the fixed portion is larger than a dimension distance between connection portions of the linear elastic members connected to the movable portion, in connecting the plurality of linear elastic members to the fixed portion and the movable portion;

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locating connection portions of the plurality of linear elastic members on a side of the fixed portion on a first virtual circle; and

locating connection portions of the plurality of linear elastic members on a side of the movable portion on a second virtual circle.

Claim 11 (currently amended): The method of producing the actuator for the pickup according to Claim 10, further comprising the steps of:

disposing the linear elastic members that are adjacent to each other when viewed from the tracking direction are disposed such that a dimension distance between connection portions of the linear elastic members connected to the fixed portion is larger than a dimension distance between connection portions of the linear elastic members connected to the movable portion, in connecting the plurality of linear elastic members to the fixed portion and the movable portion.

Claims 12-13 (canceled):

Claim 14 (previously presented): The method of producing the actuator for the pickup according to Claim 10, further comprising the steps of:

installing the linear elastic members in a mold for molding the fixed portion and the movable portion; and

injecting a molten resin from an injection port of the mold to insert-mold the actuator for a pickup.

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Claim 15 (canceled):

Claim 16 (currently amended): An actuator for a pickup, comprising:

a fixed portion;

a movable portion movable in each of a focusing direction extending along an optical axis of an objective lens and in a tracking direction substantially perpendicular to the focusing direction, for holding the objective lens; and

six linear elastic members each having ends connected to the movable portion and the fixed portion, respectively, wherein

the linear elastic members that are adjacent to each other when viewed from the focusing direction are designed such that a dimension distance between connection portions of the linear elastic members connected to the fixed portion is larger than a dimension distance between connection portions of the linear elastic members connected to the movable portion, and

the six linear elastic members have connection portions on a side of the fixed portion which are located on a first virtual circle, and connection portions on a side of the movable portion which are located on a second virtual circle.

Claim 17 (previously presented): The actuator for the pickup according to claim 16, wherein the first virtual circle and the second virtual circle have a common center, and the center of the virtual circles serves as a rotating center of the movable portion.